

ABSTRACT OF THE DISCLOSURE

1 A cathode for an electron tube, including a metal base and an electron-emitting material layer
2 coated on the metal base, where the electron-emitting material layer contains a needle-shaped
3 conductive material and the surface roughness corresponding to a distance between the highest point
4 and the lowest point on the surface of the electron-emitting material layer is controlled to be under
5 10 microns. A needle-shaped conductive material is contained in an electron-emitting material layer
6 to effectively form a conductive path, thereby minimizing the generation of Joule heat due to self-
7 heating of the electron-emitting material layer. Also, grain and pore sizes of the electron-emitting
8 material layer are uniformly controlled and the density and porosity of the electron-emitting material
9 layer are also controlled, thereby improving the density and surface planarity of the cathode
10 compared to the conventional cathode manufactured by a spraying method. Thus, during the
11 operation of the cathode, shrinkage of the cathode can be prevented and uniformity in the distance
12 between a cathode and a first grid can be maintained, thereby improving a lifetime characteristic and
13 exhibiting a stable emission characteristic. Therefore, the electron tube cathode can remarkably
14 improve a lifetime characteristic even for a high current density, which is needed for a larger and
15 higher-definition cathode-ray tube.